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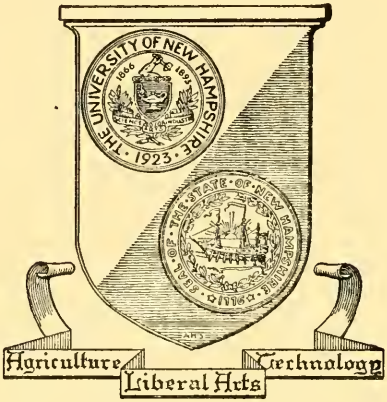

The University
of
New Hampshire

Bulletin 352 July, 1944

THE UNIVERSITY OF NEW HAMPSHIRE
AGRICULTURAL EXPERIMENT STATION
Department of Agricultural and Biological Chemistry

Inspection of Commercial Feedingstuffs

Made for the

State Department of Agriculture

By T. O. Smith and H. A. Davis

The University of New Hampshire
Durham, N. H.

INSPECTION OF COMMERCIAL FEEDINGSTUFFS

MADE FOR THE

STATE DEPARTMENT OF AGRICULTURE

The inspection of commercial feedingstuffs reported in this bulletin was made under the direction of Honorable Andrew L. Felker, Commissioner of Agriculture. Mr. C. A. Lyon, State Inspector, collected samples of 233 brands of feedingstuffs which were offered for sale in the State during the year ending June, 1944. The 233 samples represent brands of 54 manufacturers.

REGISTRATION AND LABELING OF FEEDINGSTUFFS

Registration:—The New Hampshire law, entitled an Act to Regulate the Sale of Concentrated Commercial Feedingstuffs, requires registration with the Commissioner of Agriculture of each brand offered for sale. This is usually done by the manufacturer or jobber whether he is located within or outside the State. Feedingstuffs manufactured in other states frequently pass through several middlemen before they reach the local distributor. Under the provisions of the law, if the manufacturer or jobber fails to make registration the dealer is responsible. Dealers who purchase feed for resale must assure themselves that the brands they purchase are properly registered and the license fee is paid or they must assume that responsibility. The official charged with the administration of the law is the Commissioner of Agriculture. All matters relative to registration and all inquiries concerning the law should be addressed to the Commissioner of Agriculture, State House, Concord.

Labeling:—The law requires every manufacturer or dealer who shall sell or offer for sale any concentrated commercial feedingstuff to furnish with each package a clearly printed statement certifying the net weight of the feed contained in the package, the brand name or trademark under which the feed is sold, the name and address of the manufacturer, the ingredients of which the feed is composed, and a chemical analysis stating the minimum percentage only of protein and of fat and the maximum percentage only of crude fiber. In order to secure greater uniformity in the labeling of feeds and in the statement of ingredients, the Association of American Feed Control Officials has adopted definitions and standards. The Association has also approved twenty-one general regulations which "should be adopted by state officials as far as the statutes will permit." There are no conflicts with the New Hampshire feedingstuffs law in these regulations. Manufacturers and dealers are, therefore, expected to conform to the regulations of the association in all matters not specifically mentioned in the law.

One sentence in the New Hampshire feedingstuffs law reads as follows: ". . . and shall state in bold type upon the container or a tag attached thereto, if a compounded feed, the names of the several ingredients therein contained." To avoid the misinterpretation or deception which may result from the manufacturer's use of indefinite terms in listing the ingredients, the Association of American Feed Control Officials has adopted 170 official definitions of ingredients used in the compounding of feedingstuffs. These definitions are subject to frequent addition and revision. At the present time there are also 48 tentative definitions and five that have been proposed for future discussion. Tentative definitions are those which have received favorable consideration but have not yet been made official. A 79-page booklet containing the above three classes of definitions, the 21 general regulations and other instructive material may be obtained from the Secretary of the Association of American Feed Control Officials, College Park, Maryland, at one dollar per copy. The manufacturer should secure a copy of this booklet and list the ingredients accurately. Carelessness or indifference in listing the ingredients should create sales resistance in the buyer. The purchaser is warranted in concluding that the manufacturer who is inaccurate in specifying the ingredients printed on the tag may also be careless in selecting the ingredients he puts into the bag.

PURPOSE OF THE FEEDINGSTUFFS LAW

The chief purpose of the feedingstuffs law is to protect the consumer against the inferior products which doubtless would soon appear on the market if the trade were not under state control. The law is primarily a correct-labeling act. It must not be assumed by the purchaser of feedingstuffs that every brand which meets the manufacturer's guarantee is a high-grade feed. The feedingstuffs law does not prevent the sale of a low-grade feed if it is properly licensed and tagged and is offered for sale in compliance with the law. It would not be in the public interest to legislate against the sale of the lower-grade by-products. They can be fed profitably if bought at a price adjusted to their feeding value. The law does prevent an inferior feed being offered for sale as a high-grade product.

The dealer in purchasing feed from the manufacturer, and the consumer in purchasing feed from the dealer, should make the specification that the feed delivered must comply with the New Hampshire feedingstuffs law. If the feed is not registered; if the protein, fat, and crude fiber are not guaranteed; and if the ingredients of which the feed is composed are not plainly stated on the bag, or on a tag attached thereto, the purchaser is not protected by the state feedingstuffs law. He then has no recourse under the feedingstuffs law if the feed which he purchases is of inferior quality. The dealer who offers for sale a feedingstuff which has not been registered and which is not guaranteed in compliance with the law is probably indifferent to his customer's interests in other respects.

He does not merit either the confidence or the patronage of the consumer. The purchaser's cooperation in refusing to buy a feed which does not conform to the law in every respect will not only help in the enforcement of the law but will at the same time afford the purchaser himself the protection of the law. If the buyer fails to assure himself that the legal requirements have been met, he accepts the feedingstuff at his own risk. The terms used in reporting the chemical analysis of a feedingstuff are briefly defined as follows:

Protein is a collective term for a considerable group of compounds, all of which contain nitrogen. Ingredients high in protein are usually more expensive than the other ingredients, making protein the most important nutrient for consideration in determining the commercial value of a feedingstuff. The nutritional value of the proteins varies widely; therefore a feedingstuff should contain protein from several sources to insure inclusion of all essential types.

Fat is separated from the other components of a feedingstuff by extracting the moisture-free sample with anhydrous ether. In such ingredients as the cereals, the seed-meals and animal products, the extract is nearly pure fat. A few ingredients such as alfalfa meal contain some ether-soluble material which is not fat.

Moisture is present in all feedingstuffs. The amount varies somewhat with weather and storage conditions. The water content of a feedingstuff should be kept as low as possible to prevent spoilage.

Ash is the mineral residue remaining after the organic matter has been completely removed by burning. It contains such essential constituents as calcium, magnesium, phosphorus and sulphur, as well as some inert material of no nutritive value.

Fiber is composed of cellulose and related compounds. Since crude fiber has little feeding value, the law requires that the maximum fiber be guaranteed rather than the minimum as in protein and fat.

Nitrogen-free extract includes the carbohydrates which are more readily digestible, such as starch and sugars. Nitrogen-free extract is not usually determined directly by analysis but is found by subtracting the sum of the percentages of protein, fat, fiber, moisture and ash from 100 per cent.

HOW COST OF INSPECTION AFFECTS PRICE

The cost of a feedingstuffs inspection includes the drawing and the analysis of the samples, and the publication and mailing of the annual bulletin. The funds from which these costs are paid are accumulated from the license fees which the manufacturer is required to pay annually on each

brand of feedingstuff offered for sale within the state. Since manufacturing and distributing costs are finally paid by the consumer, the purchaser of feedingstuffs is interested in the effect of the cost of the inspection on the retail price per ton. The sixteenth census of the United States Department of Commerce under the heading, specified farm expenditures, 1939, reports the retail value of feeds for domestic animals and poultry sold in New Hampshire in that year as $7,619,245. A calculation based on this valuation, and the known costs of the inspection, shows that the cost to purchasers is less than four cents per ton of feed, a fraction of a cent per 100-pound bag. The 1939 figure for the retail value of feedingstuff sold annually in the state is used, since it is the most recent authoritative figure available. It is estimated the present figure is approximately double that amount.

SAMPLES FAILING TO COMPLY WITH THE LAW

Of the 233 brands analyzed, 40 brands, or 17.2 per cent, were below the guaranteed amount of protein. Twenty-one of these were less than one-half per cent below guarantee. Seventy-one brands, or 30.4 per cent, were below guarantee in fat. Forty-six of these were less than one-fourth per cent below guarantee. Sixteen brands, or 6.9 per cent, contained an excessive amount of crude fiber.

In the tabulation of the analytical figures (p. 10 to p. 18 inclusive) those figures one-half per cent or more below guarantee in protein, one-fourth per cent or more below guarantee in fat, and one per cent or more above guarantee in crude fiber are printed in bold-face type.

The ingredients are not included this year. One reason for the omission is to save paper and printing costs. Another reason is that an enumeration of the ingredients would be somewhat inaccurate this year since the manufacturers have had to make formula substitutions when some ingredients were not available. Also to save paper and printing costs the analytical results on moisture, ash and nitrogen-free extract are not included as in past years. The law does not require the manufacturer to guarantee these constituents. They have been determined and the results are on file in the laboratory. If the reader can make use of these figures on any of the following brands, they will be furnished on request.

Table I shows the percentage of samples failing to conform to the guarantee in each of the last nineteen years.

TABLE I. PERCENTAGE OF SAMPLES ANALYZED IN YEARS 1926-1944 NOT CONFORMING TO GUARANTEES

Year	Per cent below guarantee in Protein		Per cent below guarantee in Fat		Per cent high in Crude Fiber
	Less than 0.5 per cent	0.5 per cent or more	Less than 0.25 per cent	0.25 per cent cent or more	
1926	8.0	16.0	4.0	10.0	6.0
1927	8.3	16.4	5.8	13.6	5.9
1928	9.1	20.7	4.3	9.3	7.9
1929	9.5	20.2	2.8	9.3	6.5
1930	4.8	13.1	4.0	8.0	3.9
1931	1.8	7.2	5.9	9.7	5.3
1932	1.8	1.4	5.0	8.1	2.8
1933	1.3	3.6	7.5	9.8	3.6
1934	3.0	3.4	3.9	7.1	9.8
1935	2.4	3.0	4.2	8.5	9.9
1936	2.9	5.2	5.5	8.3	12.2
1937	2.8	4.2	3.0	6.0	11.0
1938	2.9	8.1	9.8	10.8	11.5
1939	1.9	3.3	6.8	9.3	8.7
1940	2.9	4.0	6.2	6.7	7.5
1941	1.1	2.6	4.7	6.7	5.6
1942	2.6	3.5	3.7	4.5	7.4
1943	3.7	2.7	7.7	8.6	7.4
1944	8.2	9.0	10.7	19.7	6.9

REQUESTS BY INDIVIDUALS FOR THE ANALYSIS OF FEEDINGSTUFFS

Under the feedingstuffs law the Agricultural Experiment Station is charged only with the analysis of samples of feedingstuffs collected by the State Inspector under the direction of the Commissioner of Agriculture. It does, each year, however, analyze a considerable number of samples drawn by individuals representing stock purchased by them for their own use. Frequently the reason for sending the sample is that the feed is suspected of causing sickness or death of livestock or poultry. While in very rare instances the feed may have caused the trouble, disease is usually found to be the cause. Many times feeders, suspecting the feed, lose valuable time in the treatment of the disease by sending a sample of the feed for analysis and waiting for the report. Losses could have been reduced had a veterinarian or poultry specialist been consulted immediately and the proper treatment given promptly. The most conclusive method of determining whether or not the feed is the cause of the trouble is a biological test. Such a test can be conducted on the premises of the feeder. If chicks have died and the feed is suspected, confine in sanitary pens two lots of healthy chicks. Give to one lot the suspected feed and to the other lot a feed known to be good. Should the chicks receiving the suspected feed die and the others remain healthy, there is evidence the feed is the cause. Under such circumstances notify the Commissioner of Agriculture and an official sample will be drawn. The official sample will be analyzed to determine if the manufacturer is responsible.

The most common reason the purchaser has for asking to have the sample analyzed is to satisfy himself whether the feed meets its guarantee and if it does not, to obtain evidence upon which to base a claim for shortage. The Station can assume no responsibility for the drawing of an unofficial sample but can attest only the accuracy of the analysis of the sample as submitted. It is practically impossible to secure a representative sample of a feedingstuff composed of several ingredients varying widely in composition without the aid of a sampling tube for drawing the sample and proper equipment for mixing it. A feed may contain as one of its ingredients gluten meal averaging 40 per cent protein, and as another ingredient oat mill feed averaging five per cent protein. These materials are so different in physical condition that the shaking in transit tends to separate them even though they may have been perfectly mixed by the manufacturer before bagging. It is apparent that an accurate sample of a ton of this feed can only be had by drawing a core from several bags. The official method requires ten. Since a representative sample is as essential as an accurate analysis in judging the value of a shipment of feed, it is evident that a satisfactory adjustment can seldom be effected on the basis of an unofficial sample.

Notwithstanding the objections which may be raised to the analysis of samples taken without proper sampling equipment, the Station is disposed to continue this work as long as there is evidence that it constitutes a useful service. The samples so submitted should be drawn from at least ten bags in a manner which will insure that the small lot sent for analysis is as accurately representative as possible of the large lot from which it is taken. Because of the cost of labor and materials, an analysis is not usually warranted on a sample drawn from less than a one-ton lot of feed.

A one-pound sample is sufficient for the analysis. It should be sent in a glass jar or tin box to prevent loss of fine particles or a change in the moisture content. In order that the department may have a satisfactory record of the sample analyzed, and may know whether or not the manufacturer and the dealer are complying with the requirements of the law, the following information should be submitted concerning each sample.

Brand .....

Manufacturer .....

Address .....

Guarantee:

Protein .....

Fat .....

Crude Fiber .....

Ingredients .....

.....

.....

Dealer .....

Address .....

Number of bags in lot .....

Number of bags sampled .....

Price per 100 pounds .....

Your name .....

Your address .....

Your reason for requesting analysis .....

.....

Manufacturer Brand	Pounds in 100 lbs. of Feedingstuff					
	Protein		Fat		Crude Fiber	
	Guaranteed *	Found	Guaranteed *	Found	Guaranteed *	Found
Allied Mills						
Chicago, Illinois						
Economy 16% Dairy Feed	16.00	18.12	3.00	3.67	9.00	5.88
Economy Laying Mash	18.00	18.34	3.00	3.92	8.00	3.69
Wayne All Mash Breeder	15.00	15.72	3.50	3.71	7.00	6.14
Wayne All Mash Egg	15.00	16.55	3.50	**3.01**	8.00	6.67
Wayne Breeder Mash	20.00	21.54	3.50	3.69	8.00	6.40
Wayne Chick and Broiler Ration	19.00	18.80	3.50	3.53	8.00	6.41
Wayne Chick Starter	18.00	18.39	4.00	**3.62**	7.00	5.06
Wayne Complete Calf Feed	16.00	16.55	3.30	4.14	9.00	8.09
Wayne 16% Dairy Feed	16.00	17.25	3.50	3.69	9.00	7.39
Wayne 18% Dairy Feed	18.00	21.36	3.50	3.31	10.00	7.21
Wayne Egg Mash	20.00	21.01	3.50	3.37	8.00	6.25
Wayne Fitting Ration	12.00	15.89	3.50	3.66	9.00	7.62
Wayne Flushing Mash	20.00	21.27	3.00	3.11	6.00	3.11
Wayne Growing Mash	16.00	16.99	3.50	3.91	7.00	5.50
Wayne Turkey Growing Mash	20.00	19.42	3.50	4.10	8.00	4.97
American Maize Products Co.						
Roby, Indiana						
Cream of Corn Gluten Feed	23.00	24.04	2.00	2.11	9.50	8.29
Ashcraft-Wilkinson Co.						
Atlanta, Georgia						
Cow-Eta Brand 41% Protein Cottonseed Meal	41.00	41.50	5.00	5.46	13.00	9.66
E. W. Bailey & Co.						
Montpelier, Vermont						
Bailey's Pennant Breeder Mash	20.00	**19.46**	3.50	4.05	7.00	3.75
Bailey's Pennant Broiler Mash	20.00	20.14	4.00	4.79	7.00	6.38
Bailey's Pennant Chick Starter	18.00	18.74	3.50	**3.06**	6.50	3.93
Bailey's Pennant Complete Grower	15.00	16.64	3.50	**2.93**	7.00	3.12
Bailey's Pennant Complete Layer Breeder	16.00	17.69	3.50	3.38	7.00	**3.64**
Bailey's Pennant 16% Dairy Ration	16.00	17.51	3.00	**2.30**	8.00	3.97
Bailey's Pennant 18% Dairy Ration	18.00	19.17	3.70	**3.03**	8.50	5.74
Bailey's Pennant Fitting Ration	14.00	14.76	3.80	**2.99**	8.00	5.45
Bailey's Pennant Laying Mash	20.00	21.27	3.00	3.92	7.00	5.32
Bailey's Pennant Pig Feed	17.00	18.12	3.50	4.08	7.00	6.52
Bailey's Pennant Victory 12 Utility Ration	12.00	14.19	3.00	**2.49**	9.00	4.12

* Protein and fat not less than, crude fiber not more than.

G. N. Bartemus Co.						
Concord, New Hampshire						
Bailey's Pennant All Purpose Mash ...	14.00	16.49	4.00	2.93	7.00	3.24
Beacon Milling Co.						
Cayuga, New York						
Beacon Breeders' Mash	20.00	21.10	3.50	4.99	7.50	6.29
Beacon C-C Pellets	15.00	17.51	1.00	6.22	5.00	3.76
Beacon Complete Starting Ration	20.00	22.42	3.50	4.60	6.50	4.83
Beacon Egg Mash	20.00	20.57	3.50	4.87	7.50	6.45
Beacon Emergency Test Cow Ration ...	16.00	18.74	4.00	3.88	9.00	7.35
Beacon Fitting Ration	14.00	16.42	3.75	3.37	8.00	6.59
Beacon Fleshing Pellets	17.00	17.90	3.25	4.53	7.50	6.29
Beacon Goat Ration	16.00	17.55	3.50	3.60	10.00	7.21
Beacon Special 18	18.00	20.66	3.50	3.65	9.00	7.08
Canton Dairies Cooperative						
Canton, New York						
Dried Skim Milk Powder	32.00	32.18	0.50	0.63	.....	.....
S. J. Cherry & Sons						
Preston, Canada						
Bran	14.00	16.69	3.50	5.43	11.50	9.66
Clinton Company						
Clinton, Iowa						
Corn Gluten Feed	23.00	22.64	2.00	2.01	8.50	8.94
Colebrook Feed Company						
Colebrook, New Hampshire						
Colebrook 18% Dairy Ration	18.00	16.97	3.50	4.13	8.00	7.64
Colebrook Stock Mix	12.00	13.31	3.00	4.06	7.00	5.72
Consolidated Rendering Co.						
Boston, Massachusetts						
Corenco Cod and Haddock Meal	60.00	62.08	5.00	7.95	.....	.....
Corenco 45% Meat and Bone Scrap ...	45.00	44.20	6.00	11.40	.....	.....
Continental Distillers' Corp.						
Philadelphia, Pennsylvania						
Wheat Distillers' Grains	20.00	23.87	4.00	5.98	18.00	16.39
O. A. Cooper Co.						
Humbolt, Nebraska						
Cooper's Best 16% Dairy Feed	16.00	14.71	2.50	2.36	14.00	11.24
Cooper's Best Lay and Gro Mash	15.00	15.94	2.25	3.50	7.00	5.72
Layer and Breeder Mash	20.00	18.93	4.00	3.54	7.00	5.19

Manufacturer Brand	Pounds in 100 lbs. of Feedingstuff					
	Protein		Fat		Crude Fiber	
	Guaranteed *	Found	Guaranteed *	Found	Guaranteed *	Found
Charles M. Cox Co.						
Boston, Massachusetts						
Wirthmore Breeder Mash	20.00	20.14	3.00	4.37	7.00	4.48
Wirthmore Calf Starter Meal	24.00	**21.30**	4.50	**3.68**	4.50	4.26
Wirthmore Complete Breeder Ration	15.00	16.94	3.00	3.64	6.00	5.03
Wirthmore Complete Egg Ration	15.00	17.25	3.00	2.77	6.00	4.52
Wirthmore Complete Growing Ration	15.00	18.52	3.00	**2.62**	7.00	4.57
Wirthmore Du-Ration 12% Dairy Feed	12.00	13.84	3.00	3.15	9.00	4.96
Wirthmore Du-Ration Poultry Mash	18.00	18.98	3.00	**2.73**	7.00	5.17
Wirthmore Du-Ration Stock Feed	10.00	11.90	2.00	3.74	9.50	9.48
Wirthmore 14 Fitting Ration	14.00	16.55	4.00	4.31	8.00	6.49
Wirthmore Growing Mash	17.50	**16.55**	3.00	3.14	7.00	4.78
Wirthmore Laying Mash	20.00	**19.44**	3.00	3.69	7.00	4.08
Wirthmore Pig and Hog Feed	17.00	17.82	4.00	**3.24**	9.00	5.39
Wirthmore Poultry Flush	17.50	17.01	3.00	**2.39**	6.00	3.58
Wirthmore Rabbit Pellets	14.00	14.28	3.00	3.26	15.00	8.94
Wirthmore 16 Record Ration	16.00	16.64	4.00	4.00	8.00	7.03
Wirthmore Standard 18 Dairy	18.00	18.87	3.00	3.71	8.50	6.89
Wirthmore Starter and Broiler Ration	20.00	22.30	3.00	3.81	6.50	4.35
Wirthmore Twin-Mix Calf Ration	17.00	17.25	4.00	4.12	7.00	6.49
Delaware Mills						
Deposit, New York						
Delaware Breeder Mash	20.00	20.70	3.00	3.74	8.00	5.38
Delaware Laying Mash	20.00	19.59	3.00	3.87	8.00	5.56
Eastern States Farmers' Exchange						
Springfield, Massachusetts						
Eastern States All Mash Developer	14.00	15.85	2.50	3.40	6.00	5.27
Eastern States All Mash Egg	15.50	17.03	3.00	3.39	5.50	5.12
Eastern States Calf Starter	23.00	25.74	3.50	3.43	6.00	5.64
Eastern States Egg Mash	20.00	**19.31**	3.00	4.06	7.00	5.30
Eastern States Finishing Pellets	15.00	15.76	3.00	3.42	5.50	5.67
Eastern States Fitting Ration	14.00	15.32	3.00	3.01	9.00	7.39
Eastern States Horse Feed	10.50	11.16	3.50	3.73	7.00	6.12
Eastern States Pork Builder	15.00	15.33	2.50	3.17	6.50	4.95
Eastern States Sixteen	16.00	16.90	3.50	3.88	8.50	5.54
Eastern States Stock Feed	11.50	13.00	2.00	2.72	7.50	5.79

Elmore Milling Co.						
Oneonta, New York						
Elmore Complete Starter-Broiler	18.00	17.51	4.00	3.80	7.00	4.67
Elmore Egg Mash	20.00	20.92	4.00	4.02	8.00	5.74
Elmore Fitting Ration	14.00	18.47	4.00	4.76	9.00	7.96
Elmore Fleshing Pellets	15.00	15.15	4.00	2.99	8.00	3.76
Elmore Goat Ration	16.00	15.63	4.00	4.02	10.00	7.53
Elmore Growing Mash	17.00	20.14	4.00	4.00	8.00	5.54
Elmore Horse Feed with Molasses	9.00	12.65	2.50	4.43	11.00	7.61
Elmore M. A. C. Laying Mash	18.00	18.74	5.00	3.33	7.00	5.59
Granger 18% Dairy Ration	18.00	18.12	3.50	4.04	11.00	7.81
John W. Eshelman & Sons						
Lancaster, Pennsylvania						
Pennsy 16 Dairy Feed	16.00	18.48	3.00	3.99	11.00	7.40
Red Rose Broiler Ration	16.50	18.48	4.00	3.02	7.50	6.46
Red Rose 85 Horse Feed	9.00	12.08	3.00	3.41	10.00	10.23
Red Rose Laying Mash	18.50	20.14	4.00	3.45	7.50	7.07
Red Rose Pig and Hog Meal	18.00	20.40	3.50	3.12	10.00	5.44
Red Rose Starter and Grower	18.00	18.04	4.00	3.31	7.00	6.54
First National Stores						
Somerville, Massachusetts						
Henfield Egg Mash	20.00	21.84	4.00	4.01	7.00	6.65
General Foods Corp.						
Kankakee, Illinois						
Burt's Hominy Feed	10.00	11.29	5.50	6.53	6.00	5.14
General Mills						
Detroit, Michigan						
Farm Service Dandy 18% Dairy	18.00	17.55	3.00	3.33	11.50	8.42
Farm Service Growing Mash	19.00	20.05	3.50	4.68	7.50	5.70
Farm Service Horse Feed	8.00	10.51	2.00	3.93	9.50	7.19
Farm Service Laying Mash	20.00	19.30	3.50	4.41	8.00	6.31
Farm Service Stock Feed	8.50	10.11	2.50	4.18	12.00	9.32
Larro 18% Broiler Feed	18.00	17.55	3.00	3.20	7.00	3.55
Larro Calf Builder	24.00	24.56	4.00	5.74	5.50	4.51
Larro Chick Builder	19.00	19.79	3.00	3.62	7.00	5.31
Larro 16% Dairy Feed	16.00	16.85	3.00	3.24	12.00	7.67
Larro Egg Mash	18.00	18.74	3.25	3.93	8.00	5.11
N. E. C. Laying Mash	18.00	20.40	4.00	4.33	8.50	5.05
Service Dairy Ration	18.00	19.83	3.50	3.93	10.00	7.11
D. H. Grandin Milling Co.						
Jamestown, New York						
Grandin's Laying Mash	18.00	18.74	3.00	4.33	8.00	6.19
Grandin's Special 16 Dairy Feed	16.00	16.29	3.50	4.29	10.00	9.61
Grandin's Start-To-Finish Mash	18.00	17.86	4.00	3.59	8.00	5.34

Manufacturer Brand	Pounds in 100 lbs. of Feedingstuff					
	Protein		Fat		Crude Fiber	
	Guaranteed *	Found	Guaranteed *	Found	Guaranteed *	Found
Great Atlantic & Pacific Tea Co.						
New York, New York						
Daily Egg Laying Mash Feed	20.00	19.31	3.00	3.13	7.50	4.57
Hales and Hunter Co.						
Chicago, Illinois						
Red Comb Breeder Mash	18.00	20.05	3.50	3.24	7.00	5.25
Red Comb Broiler Mash	18.00	20.14	3.50	3.81	7.00	4.47
Red Comb Crate Fattener	13.00	15.32	3.50	3.40	7.00	5.23
H. P. Hood & Sons						
Boston, Massachusetts						
Powdered Skim Milk	32.00	33.45	0.75	0.81	.....	.....
E. C. & W. L. Hopkins						
Greenfield, New Hampshire						
Granite State Breeder Mash	20.00	20.40	4.00	4.57	6.00	6.62
Granite State Chick Starter	20.00	19.50	4.00	3.68	6.00	5.60
Granite State Complete Breeder Mash	15.00	16.46	4.00	3.32	7.00	6.05
Granite State Complete Mash	15.00	17.90	4.00	3.78	7.00	6.03
Granite State 18% Dairy Feed	18.00	19.61	4.00	4.40	10.00	8.31
Granite State Egg Mash	19.00	20.49	4.00	4.25	5.50	5.12
Granite State Fitting Ration	12.00	15.24	4.00	3.12	8.00	7.88
Granite State Growing Mash	19.00	20.79	4.00	4.32	6.00	6.14
Granite State Hog Ration	18.00	18.17	5.00	3.91	7.00	6.28
Granite State Stock Feed	9.00	9.76	5.00	5.85	10.00	9.43
Page 16% Dairy	16.00	18.34	4.00	4.57	9.00	8.54
Red Tag Dairy Feed	18.00	19.48	3.50	3.41	12.00	13.03
International Milling Co.						
Minneapolis, Minnesota						
Blackhawk Wheat Bran	15.00	17.51	2.50	4.81	12.00	9.26
Kasco Mills						
Waverly, New York						
Kasco All Mash Grower	15.00	16.20	3.00	3.59	7.00	7.07
Kasco All Mash Laying and Breeding Ration	15.00	16.55	3.00	3.83	6.50	6.99
Kasco Body Builder	15.00	17.69	3.00	4.20	7.00	7.00
Kasco Fitting Ration	14.00	14.58	3.50	3.52	8.00	7.44
Kasco 18% Milk Maker	18.00	19.13	3.50	4.07	10.00	8.41
Kasco Poultry Flushing Mash	17.00	16.73	3.50	3.16	6.00	5.89

Kellogg Milling Co.						
St. Paul, Minnesota						
Ground Whole Wheat	13.00	14.36	2.00	1.81	6.00	2.28
Keystone Dehydrating Co.						
Nazareth, Pennsylvania						
Keystone Super Green Alfalfa Meal	13.00	13.62	2.00	**1.62**	30.00	**36.08**
Maple Leaf Milling Co.						
Toronto, Canada						
Rex Wheat Bran	15.00	**14.50**	3.50	4.54	12.00	10.52
Maritime Milling Co.						
Buffalo, New York						
B-B 18% Broiler Ration	18.00	19.74	3.50	**3.00**	7.00	5.16
B-B Conditioning Mash	14.00	17.64	2.50	2.86	4.00	3.77
B-B Growing Mash	17.00	20.36	3.50	3.67	8.00	5.23
B-B Layer and Breeder Mash	20.00	22.68	3.50	4.21	7.00	5.57
Daisy Growing Mash	17.00	22.44	3.50	3.71	8.00	5.87
Dollar Maker Egg Mash	19.00	19.35	3.50	2.81	8.00	4.45
McKee Feed and Grain Co.						
Muscatine, Iowa						
Duration Corn Rye Feed	9.50	**7.73**	3.50	3.41	2.50	1.89
Merrimack Farmers' Exchange						
Concord, New Hampshire						
Grain Base Feed	8.00	10.37	4.00	4.01	7.00	2.29
Merrimack All Mash	15.00	14.51	4.00	4.04	6.00	4.19
Merrimack Calf Meal	20.00	**19.38**	4.50	5.48	5.00	**6.19**
Merrimack Calf Starter (Pelleted)	18.00	18.17	4.00	4.21	4.00	4.48
Merrimack 18% Dairy Ration	18.00	19.26	4.00	3.91	8.50	6.54
Merrimack Fitting Ration	14.00	17.95	4.50	**3.15**	8.00	6.57
Merrimack Goat Ration	14.00	16.19	4.50	**3.71**	8.00	6.93
Merrimack Hog Ration	15.00	15.45	4.00	**2.70**	7.00	4.40
Merrimack Horse Feed	11.00	13.31	3.75	**2.96**	6.25	4.23
Merrimack Laying Mash	19.00	18.69	4.25	5.05	6.00	3.62
Merrimack Pig Ration	17.00	**16.14**	5.00	**2.97**	7.00	5.05
Merrimack Turkey Growing Mash	20.00	**17.10**	3.00	4.69	8.00	5.11
Merrimack 18% War Ration	18.00	18.04	3.00	3.31	8.00	7.67
George Q. Moon & Co.						
Binghamton, New York						
Moon's Special A Laying Mash	18.00	**17.30**	3.50	3.70	9.00	5.24
Moon's Special A Laying Mash Pellets	18.00	**16.38**	3.50	3.75	9.00	5.32
Special A Dairy 16% Ration	16.00	16.68	4.00	4.89	10.00	5.95
Special A Dairy 18% Ration	18.00	17.62	4.00	5.27	10.00	7.23
James F. Morse & Co.						
Somerville, Massachusetts						
Morse's 55% Meat Scraps	55.00	55.07	8.00	10.91	.....	.....

Manufacturer Brand	Pounds in 100 lbs. of Feedingstuff					
	Protein		Fat		Crude Fiber	
	Guaranteed *	Found	Guaranteed *	Found	Guaranteed *	Found
Neumond Company **St. Louis, Missouri**						
Neumond Grain Base Mix	9.00	8.71	2.75	**1.73**	3.00	1.79
Ogden Grain Co. **Utica, New York**						
Biddy Laying Mash	18.00	19.17	4.00	5.24	7.00	5.57
Cloverbloom 18% Dairy Feed	18.00	21.19	3.50	3.66	12.00	7.56
Pilgrim 16% Dairy Feed	16.00	19.61	4.00	**3.64**	8.00	7.07
Pilgrim Layer and Breeder	19.00	19.65	4.00	4.09	7.00	5.72
Pilgrim Starter and Broiler Ration	19.00	19.09	4.00	4.87	7.00	6.38
Pilgrim Starter-Grower-Layer	15.00	18.17	4.00	3.91	8.00	6.18
Oswego Soy Products Corp. **Oswego, New York**						
Old Process Expeller 41% Protein Soybean Oil Meal	41.00	42.33	4.50	4.94	7.00	4.93
Park & Pollard Co. **Boston, Massachusetts**						
Doublex 18% Dairy Ration	18.00	**16.18**	3.50	**3.23**	11.00	9.00
Go-Tu-It Pig and Hog Ration	15.00	16.11	3.00	3.19	8.00	6.11
Lay or Bust Dry Mash	18.00	21.62	3.00	3.06	7.00	7.26
Milkmaid 18% Dairy Ration	18.00	17.53	3.50	3.30	10.00	7.82
Park & Pollard Breeder Mash	20.00	22.02	3.00	4.06	7.00	7.52
Park & Pollard Chick Starter	17.00	20.31	3.00	2.88	6.00	5.05
Park & Pallard Fitting Ration	12.00	13.49	3.00	2.96	8.00	7.58
Park & Pollard Growing Feed	16.00	18.56	3.00	**2.50**	7.00	7.93
Park & Pollard Starter and Broiler Mash	18.00	20.66	5.00	**3.09**	6.00	**7.22**
Yankee Horse Feed	10.00	11.55	3.00	3.17	9.00	6.15
Pillsbury Flour Mills **Minneapolis, Minnesota**						
Pillsbury XX Daisy	16.00	18.82	4.00	5.27	4.00	3.95
Pillsbury's Hard Wheat Bran	14.00	18.04	4.00	4.83	12.00	10.96
W. N. Potter Grain Stores **Greenfield, Massachusetts**						
Utility Poultry Mash	18.00	**17.40**	3.00	2.85	7.00	4.09

Quaker Oats Co.						
Chicago, Illinois						
Ful-O-Pep Broiler Mash	19.00	19.83	4.00	4.44	8.00	5.55
Ful-O-Pep Chick Starter	17.00	16.79	4.50	4.81	7.00	5.51
Ful-O-Pep 18% Dairy Ration	18.00	17.69	3.50	4.16	9.00	7.01
Ful-O-Pep Egg Breeder Mash	20.00	20.75	4.00	4.41	8.00	5.75
Ful-O-Pep Growing Mash	19.00	19.17	4.00	4.43	7.00	5.87
Quaker Sugared Schumaker Feed	10.00	11.07	3.00	3.56	12.00	9.26
Ralston Purina Co.						
St. Louis, Missouri						
Purina B & M Cow Chow	16.00	15.65	3.50	3.86	10.00	8.16
Purina Breeder Lay Chow	22.00	21.65	3.50	4.98	8.00	6.44
Purina Breeder Layena	15.50	15.76	3.50	4.39	8.00	5.17
Purina Broiler Chow	18.00	19.09	3.50	3.96	7.00	5.25
Purina Calf Startena	19.50	20.22	2.50	3.54	9.50	8.19
Purina 18% Cow Chow	18.00	19.00	3.00	4.10	12.00	7.66
Purina Hog Fatena	14.00	16.46	3.00	3.32	7.00	6.45
Purina Layena	15.50	16.46	3.50	3.58	8.00	5.82
Purina Layena	15.50	16.15	3.50	3.76	8.00	5.00
Purina Omolene	10.00	12.52	3.00	3.66	11.00	7.83
Purina Turkey Fatena Checkers	14.00	16.20	3.50	3.29	7.00	5.41
Rex Grain and Milling Co.						
Buffalo, New York						
Crown Horse Feed	10.00	11.73	3.00	3.20	9.00	5.79
Russell-Miller Milling Co.						
Minneapolis, Minnesota						
American Beauty Pure Wheat Bran	14.50	17.16	4.00	4.25	9.50	7.69
Occident Standard Middlings	15.00	16.11	4.00	5.31	9.50	9.23
Spencer Kellogg & Sons						
Edgewater, New Jersey						
Old Process Linseed Oil Meal	34.00	34.76	3.50	5.86	9.00	7.33
A. E. Staley Manufacturing Co.						
Decatur, Illinois						
Staley's Corn Gluten Feed	23.00	27.36	1.50	2.81	8.00	6.80
Stratton & Co.						
Concord, New Hampshire						
Stratton & Co., Fancy Wheat Bran	14.00	16.29	4.00	3.91	11.00	9.26
Stratton & Co., Fancy White Middlings	14.00	17.34	4.26	5.11	6.50	3.85
Stratton & Co., Standard Wheat Middlings	14.00	16.77	4.00	4.92	9.00	6.26
Stratton & Co., Stock Feed 24	7.50	7.50	2.83	4.32	14.43	12.66
Stratton & Co., Wheat Mixed Feed	13.50	15.54	4.11	4.49	7.13	8.10

Manufacturer Brand	Pounds in 100 lbs. of Feedingstuff					
	Protein		Fat		Crude Fiber	
	Guaranteed *	Found	Guaranteed *	Found	Guaranteed *	Found
Unity Feeds						
Boston, Massachusetts						
Life Saver Mash	17.00	19.04	3.00	3.73	8.00	4.93
Unity Breeder Mash	18.00	18.01	3.00	4.20	7.00	5.32
Unity 18% Dairy Ration	18.00	21.54	4.00	4.18	10.00	8.16
Unity Fitting Ration	12.00	13.75	4.00	**3.72**	7.00	5.41
Unity Horse Feed	10.00	13.17	3.00	3.96	9.00	7.09
Unity Pig and Hog Ration	17.00	17.95	4.00	3.89	8.00	4.22
Wayne County Grangers Feed Corp.						
Clyde, New York						
Superior Calf Grower	15.00	19.44	4.00	4.06	8.00	6.61
Superior 18% Dairy Feed	18.00	18.17	4.00	3.85	10.00	7.97
Superior Fitting Ration	14.00	15.76	4.00	**3.62**	9.00	8.18
Superior Growing Mash	16.00	17.42	3.50	3.62	7.50	6.19
Superior Hog Ration	16.00	19.00	3.50	3.46	7.00	5.36
Superior Horse Feed	10.00	12.78	3.00	3.07	9.00	8.27
Superior Laying Mash	16.00	21.75	3.50	5.02	7.50	5.79
H. K. Webster Co.						
Lawrence, Massachusetts						
Blue Seal All Mash Egg Ration	15.00	16.37	4.00	4.18	5.50	5.49
Blue Seal Breeders' Laying Mash	20.00	20.14	4.00	4.43	6.50	**7.79**
Blue Seal Chick Starter	19.00	20.75	4.00	**3.36**	6.50	5.46
Blue Seal 16 Dairy Ration	16.00	17.20	3.00	3.78	9.00	7.89
Blue Seal 18 Dairy Ration	18.00	19.04	4.00	4.45	9.00	7.26
Blue Seal Egg Mash	18.00	20.35	4.00	**3.73**	6.50	5.50
Blue Seal Growing Mash	18.00	18.74	4.00	4.00	7.00	5.91
Whitmoyer Laboratories						
Myerstown, Pennsylvania						
E-B Vitamin Concentrate	27.00	27.41	8.00	7.91	3.50	3.46
A. K. Zinn & Co.						
Battle Creek, Michigan						
M-O-Starter and Grower	20.00	21.36	3.50	3.57	7.00	5.35